



INDEX TO VOL. XLVII

**SCHOOL SCIENCE
AND MATHEMATICS**

1947

INDEX BY TITLES

A

Accidents Chief Killer of School Boys, Girls.....	38
Aeronautical Research Scientist.....	559
Agassiz, Louis, Teacher of Science, JAMES D. TELLER.....	729
Ain't It Awful. DONALD COCHRANE.....	511
Airplanes, The History of. RUTH A. LAUNIE.....	359
Algebra?, A Meaning Theory for. JOHN J. KINSELLA.....	775
Algebra, An Interesting Trend in the Teaching of PHILIP S. JONES.....	225
Aluminum Alloys Containing Beryllium Have Increased Tensile Strength...	263
American Institute of Physics.....	469
American Scientific Journals in Foreign Lands.....	347
Announcement to All Subscribers, An Important.....	501
Apple Tree Blossoms Late, Dodging Frost, Newly Patented.....	266
Aptitude and Ability in Elementary Algebra. HERSCHEL E. GRIME.....	781
Arithmetic Instruction, From a Mechanistic to a Meaningful Program of: A Suggested Approach. PAUL D. CARTER.....	604
Arithmetic Jack Built.....	548
Arithmetic Teacher, Some Sidelights for the. WILLIAM L. SCHAAF.....	315
Astronomers in Czechoslovakia Spot Two Comets within a Year, Keen-Eyed.	530
Atmosphere of the Sun, The. ORREN MOHLER.....	1
Atomic Energy.....	445
Atomic Energy. AARON GOFF.....	641
Atomic Science, Mathematics Problems from. HYMAN RUCHLIS.....	807
Awards for Research.....	423

B

Biologist and the Coming World Order, The. EDWARD C. COLIN.....	33
Biology Teaching, Some Fundamentals of. E. LAURENCE PALMER.....	15
Biology Teaching Under State Supervision, The Effective Administration of High School. CHARLES E. PACKARD.....	817
Birds, It is Fun to Know About.....	372
Blood Typing and Blood Inheritance Using Students and Parents as Subjects for Demonstration. EUGENE W. GROSS and ESTELLE LABA.....	715
Book Reviews:	
Analytic Geometry, Second Edition—Steen, Ballou. W. K. McNABB...	673
An Introduction to College Mathematics—Newsom. W. K. McNABB...	393
An Introduction to Organic Chemistry, Sixth Edition Revised—Harrow, Apfelbaum. A. L. BURLINGAME.....	92
Applied Chemistry—Wilson and Mullins. KENNETH E. ANDERSON.....	756
A Textbook of Qualitative Analysis—Meldrum and Daggett. A. L. BUR- LINGAME.....	591
Atomics for the Millions—Eidinoff. GLEN W. WARNER.....	758
Aviation Education: Teachers' Guide. RUSSEL B. DANIELS.....	586
Basic Chemistry—Bayles and Mills. KENNETH E. ANDERSON.....	755
Basic Mathematics for Technical Courses—Tuites. SHELDON S. MYERS...	593
Biology for You—Vance, Miller. HOWARD F. WRIGHT.....	291
Charles Darwin and the Voyage of the Beagle—Edited by Nora Barlow. EDWARD C. COLIN.....	495
Chemical Specialities—Bennett. A. L. BURLINGAME.....	592
Chemistry: A Course for High Schools—Hogg, Alley, Bickel. A. L. BUR- LINGAME.....	93
Chemistry and Human Affairs—Price, Bruce. SHAILER PETERSON.....	391
Chemistry for Our Times—Weaver, Foster. B. CLIFFORD HENDRICKS.....	589
Circuit Analysis by Laboratory Methods—Skröder, Helm. H. R. VOOR- HEES.....	91
College Algebra—Peterson. CECIL B. READ.....	676
Communication Through the Ages—Still. GLEN W. WARNER.....	590
Concise Analytic Geometry—Sisam. CECIL B. READ.....	295
Cosmic Radiation; Fifteen Lectures—Translated by Johnson. JOSEPH D. ELDER.....	669

Curves—Yates. CECIL B. READ.....	295
Descriptive Geometry—Watts, Rule. A. A. GRINNELL.....	296
Directed Experiments in Chemistry—Eckert, Lyons. KENNETH E. ANDERSON.....	755
Discovering Our World, Books One and Two—Beauchamp, Williams, Blough. ANNA E. BURGESS.....	669
Doorways to Science—Hunter and Whitman. SHELDON S. MYERS.....	756
Electrical Engineering—Pumphrey. H. R. VOORHEES.....	496
Electricity, Principles, Practice Experiments—Siskind. H. R. VOORHEES.....	842
Electrons (+ and -), Protons, Neutrons, Mesotrons, and Cosmic Rays, Revised—Millikan. GLEN W. WARNER.....	668
Elementary Applied Aerodynamics—Hamke. H. R. VOORHEES.....	201
Elements of Machines—Verwiebe, Burns, Hazel. GLEN W. WARNER.....	292
Elements of Soil Conservation—Bennett. VILLA B. SMITH.....	588
Endless Horizons—Bush, Jewett. H. R. VOORHEES.....	587
Essential Business Mathematics—Snyder. ALBERT R. MAHIN.....	671
Essentials of College Algebra and Mathematics of Investment—Hart. W. K. McNABB.....	673
Essentials of General Chemistry—Hopkins, Bailor. A. L. BURLINGAME.....	93
Essentials of Plane and Spherical Trigonometry—Bell, Thomas. FRANK B. ALLEN.....	297
From Galileo to the Nuclear Age, Revised—Lemon. H. R. VOORHEES.....	588
Fundamentals of Aviation. RUSSEL B. DANIELS.....	586
Fundamentals of Solid Geometry—Nyberg. DOYLE T. FRENCH.....	671
General Biology, Second Edition—Strausbaugh, Weimer. ESTHER WHITNEY-POTZGER.....	843
Great Engineers and Great Planes—Stout. GLEN W. WARNER.....	844
Intermediate Algebra, Second Edition—Orleans, Hart. ALBERT R. MAHIN.....	841
International Payments; A Science—Hall. CECIL B. READ.....	91
Laboratory Manual for General Zoology—Colin. HOWARD F. WRIGHT.....	668
Lectures on the Calculus of Variations—Bliss. CECIL B. READ.....	296
Mathematicians' Delight—Sawyer. CECIL B. READ.....	396
Mathematics and Life, Books 1 and 2—Knight, Studebaker, Tate. PHILIP PEAK.....	94
Mathematics for the Consumer—Schorling, Clark, Lankford. ALBERT R. MAHIN.....	841
Mathematics in Action, Books One, Two, Three—Hart, Jahn. SHELDON S. MYERS.....	674
Mathematics in Life; Basic Course—Schorling, Clark. CECIL B. READ.....	91
Mechanical Drawing—Nicholson. H. R. VOORHEES.....	843
New Trigonometry Including the Elements of Spherical Trigonometry—Mallory. ALBERT R. MAHIN.....	675
New World of Chemistry—Jaffe. KENNETH E. ANDERSON.....	586
On Understanding Science, An Historical Approach—Conant. GLEN W. WARNER.....	759
Our Big World—Barrow, Parker, Sorensen. VILLA B. SMITH.....	390
Photoelectric Cells—Sommer. H. R. VOORHEES.....	843
Physics—Whitman, Peck. D. L. BARR.....	202
Physics for the New Age—Carleton, Williams. ESTIL B. VAN DORN.....	672
Plane Trigonometry—Mode. PHILIP PEAK.....	760
Practical Biology—Sanders. J. McMENAMIN.....	585
Practical Electrical Mathematics—Rasch. CECIL B. READ.....	396
Preparatory Business Mathematics—Smail. PHILIP PEAK.....	759
Science, A Story of Discovery and Progress—Davis, Sharpe. SHELDON S. MYERS.....	757
Science in a Changing World Revised—Cable, Getchell, Kadesch. SHAILER PETERSON.....	392
Science—Its Effects on Industry, Politics, War, Education, Religion, and Leadership—Hill. KENNETH E. ANDERSON.....	754
Science Since 1500—Pledge. JOSEPH D. ELDER.....	670
Secret—Stout. GLEN W. WARNER.....	844
Smith's College Chemistry, Sixth Edition—Ehret. A. L. BURLINGAME.....	592
Soul of Lodestone—Still. GLEN W. WARNER.....	95
Table of Arc Sin X—Briggs, Lowan. W. E. ANDERSON.....	294

Tables of Associated Legendre Functions—Lowan. W. E. ANDERSON.....	394
The Amazing Electron—Shannon. GLEN W. WARNER.....	495
The American Continents—Barrows, Parker, Sorensen. VILLA B. SMITH..	391
The Development of Trigonometry from Regiomantanus to Pitiscus— Zeller, W. K. McNABB.....	394
The Electronic Theory of Acids and Bases—Luder, Zuffanti. A. L. BUR- LINGAME.....	591
The Herbal of Wufinus—Thorndike, Benjamin. GRACE B. VITZ.....	293
The Link Trainser as a Classroom Demonstrator. RUSSEL B. DANIELS....	586
The Magic Numbers—Bell. CECIL B. READ.....	395
The Wonderworld of Science, Book Nine—Meister, Keirstead, Shoemaker. WALTER A. THURBER.....	292
Vitalized General Science—Newman. KENNETH E. ANDERSON.....	585
Vitalized Physics, Revised—Carleton, Idelson. ESTIL B. VAN DORN.....	94
Books and Pamphlets Received. GLEN W. WARNER.....	89, 199, 389, 493, 583, 664, 751,
Botany Editor, Mr. McMenamin New.....	103
Brain Wave Analyzer, British Inventor Shows New.....	298

C

Caldwell, Otis William. KATHARINE ISENBARGER and JEROME ISENBARGER..	597
Calibration of Laboratory Instruments. The. SHELDON S. MYERS.....	698
Camera, A Matchbox Size.....	520
Catalog, A New.....	601
Central Association of Science and Mathematics Teachers Report of the De- troit—HAROLD H. METCALF, Secretary.....	276
Minutes of the Meeting of the Board of Directors.....	276
The Saturday Morning Business Session.....	278
The Saturday Afternoon Meeting of the Board.....	280
The Section Meetings.....	280
Report of Business Manager and Treasurer, 27, Nov. 1946.....	281
Report of Policy Committee.....	281
Report of the Committee on Anniversary Publication.....	282
Chemist Looks at the Manufacture and Control of Pharmaceuticals, A. J. RUSSELL BRIGHT.....	39
Chemistry and the Consumer, The Science of. JAMES R. IRVING.....	251
Chemistry Laboratory Work, Purposeful and Meaningful. HERMAN R. RAHN	614
Chemistry Now Has a New Editor. GLEN W. WARNER.....	336
Children, Important for Our. HAROLD E. STASSEN.....	388
Children, Stop Cheating Your.....	24
Christmas Maze to Occupy Your Holidays, A. A. N. TUCKER.....	761
Coleus, Factors Contributing to the Death of Submerged. R. D. WOOD....	305
College Enrollments Top Previous Record by Fifty Per Cent.....	145
Combinations, A New Formula for. KADY TAN.....	762
Computations with Approximate Numbers. WILLIAM A. GAGER.....	424
Conics, An Application of Degenerate. RUTH B. RASMUSEN.....	502
Conic Sections and the Solar System, The. W. ROY UTZ.....	742
Conics, More Fun with. NORMA SLEIGHT.....	303
Convention, Our 1947.....	602
Coolant for Airplane Engine, A New.....	102
Coordinator of Scientific Activities Appointed at the George Washington University, A.....	29
Coral Beaches Formed by Lime from Dead Seaweed, Many.....	801

D

Darwin Versus Experimental Biology. WILLIAM J. TINKLE.....	369
Demonstrating Chemical Principles, Some Simple Ways of. ROBERT H. LONG.....	409
Demonstrations for Beginning Chemistry, Some. ROBERT H. LONG.....	6
Dissecting Frogs, An Identification Aid When. LEE R. YOTHERS.....	421
Dogs and Atoms.....	648

E

Eastern Association of Physics Teachers. One Hundred Sixty-Third Meeting.	
---------------------------------------------------------------------------	--

ALBERT THORNDIKE, Secretary	54
Address: Recent Advancements in Metallurgical Materials. CARL REX. . .	55
Address: A Physicist at Bikini. JOHN FORMWALT	58
Address: Evolution of the Torpedo. WILLIAM S. WHITESIDE	63
Eastern Association of Physics Teachers. One Hundred Sixty-Fourth Meeting.	
ALBERT THORNDIKE, Secretary	375
Address: The Physics of Precipitation in the Atmosphere. ROLAND J. BOUCHER	375
Eastern Association of Physics Teachers. One Hundred Sixty-Fifth Meeting.	
ALBERT THORNDIKE, Secretary	572
Address: Newton's Third Law. FRANCIS WESTON SEARS	572
Abstract of an Address: Polarized Light. HANS MUELLER	577
Abstract of an Address: Production and Use of High Energy Electrons. IVAN ALEXANDER GETTING	577
Electricity—Applied, Elementary. JOHN STERNIG	609
Electronics, A Proposed Definition of. ROBERT STOLLBERG	258
Elementary Science and Society. ILLA PODENDORF	549
Elementary Science, Enthusiasm in. GARNET TODD	44
Elementary Science Important?, Is. ANNA E. BURGESS	337
Elementary Science in an Integrated Program. SYLVESTER J. SIUDZINSKI	348
Elementary Science, Miss Burgess Editor of	103
Elementary Science Program, Vitalizing the. EDWARD POWERS	267
Engineers, M.I.T. President Cites Need for	38
Euclid, The Demise of. E. T. BELL	327
Examination Announced for Mathematician	336
Exhibit as a Supplementary Method—VI. The, Atomic Bomb. HAROLD J. ABRAHAMSON	165
Experimental Determination of e , An. R. F. GRAESSER	9
Eye Bank for Sight Restoration, Inc., The	459

F

Fellowship Award Deadline Set	88
Fellowships and Associateships at Battelle Memorial Institute	358
Fellowships at Case School of Applied Science	335
Film for Elementary School Science Classes, A New Young America Teaching	474
Filming for Your Science Classes. ELLA M. CLARK	475
Films for Mechanical Drawing, New	138
Films, New	762
Films on Basic Bird Study, New Science Adventures	254
Fitterer, J. C.	678
FM Broadcast Transmitters for Colleges	501
Food, Alert. GRACE E. BARSTOW MURPHY	805
Food Education. PAUL H. JONES	353
Forests and People. SAMUEL T. DANA	117
Formula Writing and Structural Diagraming in High School Chemistry, A Method for Teaching. KENNETH E. ANDERSON	46, 188, 269
Forty-Hour Week or Only 77 Hours? A	398
Franklin Medals for 1947, The	514

G

General Chemistry, Applied Mathematics in. SISTER M. IGNATIA	563
General Mathematics, We Can Remove the Stigma from. H. VERNON PRICE ..	446
Geography of Arabia, The Changing. CLARENCE WOODROW SORESENSEN	497
Geography Teachers Will Meet at Charlottesville	639
Geometric Illustrations in Teaching Algebra. V. C. O'LEARY	802
Geometric Solutions of Quadratic Equations. WALTER H. CARNAHAN	687
German Scientists Aiding American Research Projects	104
Girls and Grades: A Significant Factor in Evaluation. DEAN LOBAUGH	763
Glycol Alcohol Has Unusual Properties, New	795
Gravitational Law of Inverse Squares, A Geometrical Discussion of the. MORLEY F. FOX	739
Gyroscope, To Explain the. GEORGE P. UNSELD	48

H

Harrison Becomes Head of American Institute of Physics	543
--------------------------------------------------------------	-----

V

Heat Lamp, A New.....	180
Hero's Formula?, Is It. NORMAN ANNING.....	514
High Energy Electrons, Production and Use of. IVAN ALEXANDER GETTING..	577
High School Chemistry, Difficult. B. CLIFFORD HENDRICKS.....	25
Hubbard Chart of the Atoms.....	340
Hybrid Corn Pops Well.....	224
Hybrid Trees Hasten Reforestation Work.....	678
Hydroelectric Plant Equipped with American Generators, Russia's New Dnieper.....	302

I

Images for Lenses and Mirrors, The Graphical Construction of. GORDON MILLS.....	30
Indiana Conservation Education Camps for Teachers, The. HOWARD H. MICHAUD.....	141
Infra-Red Ray Dries Smokeless Powder.....	113
Institute of Biology Will Be Coordinating Center, New.....	206
Integral Solutions of $x^2+y^2+z^2=r^2$. RALPH HOYT BACON.....	155
Iodine Research, \$1,000 Award for.....	728

J

Jefferson Award, Dr. Rainey Selected for.....	616
-----------------------------------------------	-----

K

Kodak Fellowships Offered for 1947-48.....	640
--------------------------------------------	-----

L

Laboratory Activities in General Science, A Plan for. IRA C. DAVIS.....	146
Laboratory Experiment on Ohm's Law Adapted to the Teaching of Scientific Method, A. HYMAN RUCHLIS.....	222
Live Pets in the Science Room? Shall We Use. GRACE CURRY.....	299
Locus, An Old. A. N. TUCKER.....	512

M

Malady and How to Cure It, The.....	47
Mars Through a Small Telescope. JOHN STERNIG.....	399
Math Circus, A. PAUL W. LEHMANN.....	560
Mathematics Classroom, Notes from A. JOSEPH A. NYBERG. . . 76, 191, 271, 484,	649
Mathematics, Improving the Quality of Instruction in. CHARLES H. SCHUTTER	404
Mathematics Institute. W. W. RANKIN.....	594
Mathematics in the Modern School Program. G. W. HAWKINS.....	569
Metallurgical Materials, Recent Advancements in. CARL REX.....	55
Metal Stains, Removing.....	652
Meteorites in Northern Indiana.....	459
Michigan Legislature Approves Health Bill.....	658
Microbiology.....	412
Mosquito Stoaways.....	450
Moss Materials for Teaching. WINONA H. WELCH.....	503
Moths Emerge from One Cocoon, Several Hundred.....	676

N

National Council of Geography Teachers.....	98
Nation Is at Stake, The Welfare of the.....	403
Natural Resource Planning and Conservation Education in Our School Pro- gram Through Biological Science, How to Increase. E. LAURENCE PALMER.....	617
Newton's Third Law. FRANCIS WESTON SEARS.....	572
Nomograms. P. M. YOUNG.....	521
Norcross Now at The American Institute of Physics.....	608
Numerical Notations, The Origins of Our. CLARA DE MILT.....	701
Nurseries.....	663

O

Oil, Soil and Metallic Ores.....	80
Ointment Prevents Burns.....	423
On To Chicago. GEORGE E. HAWKINS.....	677
Optical Firm Gives Telescope to Warner and Swasey Observatory.....	336
Outdoor Education, Techniques of. II. How to Make a Key.....	539
Oyster Its Place, Give the. ROBERT S. BAILEY.....	653

P

Pacific Chemical Exposition, The.....	164, 275
Pavement Material, Reconditioner for.....	284
People and Jobs, Matching. ARTHUR S. GREINER.....	173
People in the Out-of-Doors. ROBERTS MANN.....	229
Pets in the Elementary Science Classroom, Care of. GRACE CURRY.....	679
Physicist at Bikini, A. JOHN FORMWALT.....	58
Physicist? What is a. RICHARD M. SUTTON.....	326
Physics Candidates in the Colleges.....	483
Physics, The Teaching of Laboratory Work in High School. R. W. LEFLER.....	531
Physics—Yes or No, High School. JAMES B. DAVIS.....	627
Plastic Wrapping for Brain Specimen.....	257
Polarized Light. HANS MUELLER.....	577
Post Card from the President, A. G. E. HAWKINS.....	397
Post War Instruments.....	314
Potassium Phthalimide Containing Nitrogen 15.....	474
Power Age, Social Implications of the. MELVIN J. SEGAL.....	241
Power and Its Economic Significance, The Growth of. H. T. DAVIS.....	124
Precipitation in the Atmosphere, The Physics of. ROLAND J. BOUCHER.....	375
President's Conference on Fire Prevention, The.....	358
Problem Department. G. H. JAMISON.....	82, 195, 285, 383, 488, 578, 659, 747, 835
Problem Solving, Some Notes on. K. L. YUDOWITCH.....	262
Profligate America.....	828

Q

Quality Control by Statistical Methods, Some Industrial Effects of. LLOYD A. KNOWLER.....	207
Quiz Section, The. JULIUS SUMNER MILLER.....	154, 250, 374, 714, 784

R

Radio Club in the Junior High School, The Functions of a. MORRIS A. BRINN.....	185
Recent Developments in Science, On Courses on. STANLEY W. MORSE.....	625
Reciprocating Piston Motion Changed to Rotary Motion Without Crankshaft.....	288
Rider Manuals Will Appear Three Times Each Year.....	795
Roller, Duane, Receives Oersted Medal.....	214
Rubber and Plastics. H. E. Brown.....	264
Russell, Dr. Henry Morris, Appointed to Harvard Post.....	683

S

Safety in the Laboratory.....	844
Salary Schedule for Teachers.....	506
School Savings in the Aleutians.....	14
School Survey, Findings in.....	408
Science Activities Contribute to Personal Development. ALBERT PILTZ.....	442
Science and Mathematics Teaching, The Crisis in. RALPH SCHORLING.....	413
Science Counseling in Secondary Schools. R. W. LEFLER.....	215
Science Curriculum, Do You Plant Change in Your. SHAILER PETERSON.....	796
Science Excursion as a Teaching Technique, The. GEORGE E. PITLUGA.....	460
Science, General Education, and the National Welfare. FREDERICK L. HOVDE.....	105
Science Honors, Boy Ornithologist, Girl Geneticist Win Top.....	445
Science Lecture in the High School Assembly. The. I. Atomic Energy. HAROLD J. ABRAHAMS.....	785
Science Talent Search Scholarships Awarded.....	520
Science Teacher, Dilemmas of the. BENJAMIN C. GRUENBERG.....	398

Science Teachers Association, Second Annual Program	96
Science Teachers May Obtain Government Publications, How. PHILIP G. JOHNSON	99
Scientific Method as a Teaching Procedure, The. GORDON M. A. MORK	526
Scientists, Tomorrow's. WATSON DAVIS	373
Simple Harmonic Motion, Putting the "Simple" in. KENNETH L. YUDOWITCH	183
Slide Rule Instruction for Students of High School Chemistry. DORR M. SIMER	725
Slow-Learning Pupils, Adapting the Study of Biology to the Ability and the Needs of. MABEL R. HUNTER	544
Solving Elementary Systems of Equations in Two Unknowns, Methods of. JOHN N. MEIGHAN	709
Song of the South	298
Sound Film, A New	182
Spectrometer, A New Type of	382
Spherical Roller Bearings in Paper-Finishing Machine, Largest U. S.	284
Square Root, A New Method for Extraction of Algebraical. KADY TAN	745
Star is Discovered, Supersmall	780
State Publications for Teachers of Science. GEORGE GREISEN MALLINSON	181
Students' Projects in Research, The Use of. JAMES M. SANDERS	212
Subtraction of Signed Numbers, Teaching the. WENDALL W. HANER	656
Synthetic Vitamin A Announced, World's First Commercial Production of ...	697

T

Teacher Examination Program, Announcement of American Council on Educations 1948	613
Teacher Shortage, The	80
Teacher, The Vanishing	221
Teaching Algebra. RAYMOND S. BRICKLEY	341
Teaching Directed Numbers. H. C. CHRISTOFFERSON	451
Teaching Film for the Elementary School, A New	154
Teaching Physics as We Use It. O. A. NELSON	829
Teaching Weather in the Elementary Grades, Suggestions for. GARNET TODD	139
Ten Eventful Years	724
Test?, For What Shall We. B. CLIFFORD HENDRICKS	203
Test?, How Shall We. B. CLIFFORD HENDRICKS	322
Tests?, How Good Are Our. B. CLIFFORD HENDRICKS	470
Tests, How to Improve Our. B. CLIFFORD HENDRICKS	554
Tests, Let's Examine Our. E. B. CHRISMAN	684
Tests?, Why Not Abolish. B. CLIFFORD HENDRICKS	114
Thermistor, The	14
Time Curves. WALTER H. CARNAHAN	507
Tincture of Iodine Has Sting Removed	275
Torpedo, Evolution of the. WILLIAM S. WHITESIDE	63
Trigonometric Functions Again, The Signs of. RAYMOND HERR	382
Trigonometric Functions of Any Angle, The Signs of the. GRACE MARIE COLEMAN	81
Trisection of the Angle. FLOYD S. LORENTZ	255
Turbine and the Anemometer, Demonstration of the Principle of the. Pupil Project. JOEL J. RHEINS	13

V

Vacuum Cleaner for the Car, A	123
Vocabulary of Chemistry, The. GEO. W. MUHLEMAN	
Part One	515
Part Two	693

W

Wickenden, William E.	774
Woody Mniun in Teaching Mosses. WINONA H. WELCH	640
World Center of Minor Plants Established at Cincinnati Observatory	745
World Government in Thirty Years	104

Y

Youths Win Scholarships for Better Farm Methods, Six	172
------------------------------------------------------------	-----

INDEX BY AUTHORS

A

ABRAHAMS, HAROLD J., Central High School, Philadelphia, Pa.....	165, 785
ALLEN, FRANK B., Lyons Twp. High School, LaGrange, Ill.....	297
ANDERSON, KENNETH E., Iowa State Teachers College, Cedar Falls, Iowa.....	46, 188, 269, 585, 586, 754, 755, 756
ANDERSON, W. E., Miami University, Oxford, Ohio.....	294, 394
ANNING, NORMAN, University of Michigan, Ann Arbor, Mich.....	386, 489, 514, 749

B

BACON, RALPH HOYT, Fairchild Camera and Instrument Corporation, Jamaica N. Y.....	155
BAILEY, ROBERT S., Christchurch School, Christchurch, Va.....	653
BAILEY, V. C., Evansville College, Evansville, Ind.....	492, 580, 661, 749
BARR, D. L., Senn High School, Chicago, Ill.....	202
BEBERMAN, MAX, Nome, Alaska.....	747
BELL, E. T., California Institute of Technology, Pasadena, Calif.....	327
BERGSTRESSER, CLINTON A., Brooklyn, N. Y.....	748
BOUCHER, ROLAND J., U. S. Weather Bureau, Boston, Mass.....	375
BRANDT, HUGO, Chicago, Ill.....	83, 197, 660, 836
BRICKLEY, RAYMOND S., Miami University, Oxford, Ohio.....	341
BRIGHT, J. RUSSELL, Wayne University, Detroit, Mich.....	39
BRINN, MORRIS A., Cleveland Junior High School, Newark, N. J.....	185
BROWN, H. E., W. M. Welch Mfg. Company, Chicago, Ill.....	264
BUCHMAN, AARON, Buffalo, N. Y.....	197, 287, 490, 579, 662, 837
BURGESS, ANNA E., Supervisor of Elementary Science, Cleveland, Ohio.....	337, 669
BURLINGAME, A. L., Chicago City College, Wilson Branch, Chicago, Ill.....	92, 93, 591, 592

C

CARNAHAN, WALTER H., Purdue University, Lafayette, Ind.....	507, 687
CARTER, PAUL D., Birmingham Public Schools, Birmingham, Mich.....	604
CHRISMAN, E. B., John R. Rogers High School, Spokane, Wash.....	684
CHRISTOFFERSON, Miami University, Oxford, Ohio.....	451
CLARK, ELLA M., Northwestern High School, Detroit, Mich.....	475
COCHRANE, DONALD.....	511
COLEMAN, GRACE MARIE, Wiley College, Marshall, Tex.....	81
COLIN, EDWARD C., Chicago Teachers College, Chicago, Ill.....	33, 495
CURRY, GRACE, Cleveland Museum of Natural History, Cleveland, Ohio.....	299, 679

D

DANA, SAMUEL T., University of Michigan, Ann Arbor, Mich.....	117
DANIELS, RUSSEL B., Oak Park High School, Oak Park, Ill.....	586
DAVIS, H. T., Northwestern University, Evanston, Ill.....	124
DAVIS, IRA C., University of Wisconsin, Madison, Wis.....	146
DAVIS, JAMES B., Lower Merion Senior High School, Ardmore, Pa.....	627
DAVIS, WATSON, Director of Science Service, Washington, D. C.....	373
DE LA GARZA, E., Brownsville, Tex.....	383
DE MILT, CLARA, Newcomb College, Tulane University, New Orleans, La.....	701
DREILING, M. M., Collegeville, Ind.....	87

E

ELDER, JOSEPH D., Wabash College, Crawfordsville, Ind.....	669, 670
------------------------------------------------------------	----------

F

FORMWALT, JOHN, Naval Torpedo Station, Newport, R. I.....	58
FOX, MORLEY F., 205 S. Kenilworth Ave., Oak Park, Ill.....	739
FRENCH, DOYLE T., Elkhart High School, Elkhart, Ind.....	671

G

GAGER, WILLIAM A., University of Florida, Gainesville, Fla.....	424
-----------------------------------------------------------------	-----

GETTING, IVAN ALEXANDER, Massachusetts Institute of Technology, Cambridge, Mass.....	577
GOFF, AARON, Cleveland Junior High School, Newark, N. J.....	641
GOSZ, ISADOR, West DePere, Wis.....	289, 582
GRAESSER, R. F., University of Arizona, Tucson, Ariz.....	9
GREINER, ARTHUR S., National Bank of Detroit, Detroit, Mich.....	173
GRIME, HERSCHEL E., Cleveland Public Schools, Cleveland, Ohio.....	781
GRINNELL, A. A., Miami University, Oxford, Ohio.....	296
GROSS, EUGENE W., Newark Colleges of Rutgers University, Newark, N. J..	715
GROSSMAN, HOWARD D., New York, N. Y.....	285
GRUENBERG, BENJAMIN C., New York, N. Y.....	398

H

HANER, WENDALL W., 541 Oakwood Ave., Highland Park, Ill.....	656
HARLOW, WILLIAM M., New York State College of Forestry, Syracuse, N. Y.	539
HAWKINS, G. E., Lyons Twp. High School and Junior College, LaGrange, Ill.....	397, 569, 677
HENDRICKS, B. CLIFFORD, University of Nebraska, Lincoln, Neb.....	25, 114, 203, 322, 470, 554, 589
HOPKINS, MILDRED, Kankakee, Ill.....	661
HORR, RAYMOND, Muskingum College, New Concord, Ohio.....	382
HOVDE, FREDERICK L., Purdue University, Lafayette, Ind.....	105
HUNTER, MABEL R., John Hay High School, Cleveland, Ohio.....	544

I

IGNATIA, SISTER M., Marygrove College, Detroit, Mich.....	563
IRVING, JAMES R., Maine Twp. High School, Des Plaines and Park Ridge, Ill.	251
ISENBARGER, JEROME, 2200 Greenleaf Ave., Chicago, Ill.....	597
ISENBARGER, KATHARINE, 2200 Greenleaf Ave., Chicago, Ill.....	597

J

JAMISON, G. H., State Teachers College, Kirksville, Mo.....	82, 195, 285, 383, 488, 578, 659, 747, 835
JOHN, FELIX, Philadelphia, Pa.....	195
JOHNSON, PHILIP G., U. S. Office of Education, Washington, D. C.....	99
JONES, PAUL H., Garden Educational Service, Ford Motor Company, Dearborn, Mich.....	353
JONES, PHILIP S., University of Michigan, Ann Arbor, Mich.....	225

K

KINSELLA, JOHN J., University School, Ohio State University, Columbus, Ohio.....	775
KNOWLER, LLOYD A., State University of Iowa, Iowa City, Ia.....	207

L

LABA, ESTELLE, The Barringer Evening High School, Newark, N. J.....	715
LAUNIE, RUTH A., Regis College, Weston, Mass.....	359
LEFLER, R. W., Purdue University, Lafayette, Ind.....	215, 531
LEHMANN, PAUL W., Dublin School, Dublin, N. H.....	560
LERNER, JOSEPH, Roxbury, Mass.....	286
LOBAUGH, DEAN, Assistant Superintendent of Schools, Eugene, Ore.....	763
LONG, ROBERT H., Green Mountain Junior College, Poultney, Vt.....	6, 609
LORENZ, FLOYD S., 1275 Hill Drive, Los Angeles, Calif.....	255

M

MAHIN, ALBERT R., Broad Ripple High School, Indianapolis, Ind....	671, 675, 841
MALLINSON, GEORGE GREISEN, University of Michigan, Ann Arbor, Mich...	181
MANN, ROBERTS, 536 N. Harlem, River Forest, Ill.....	229
McMENAMIN, JOSEPH P., Oak Park Twp. High School, Oak Park, Ill.....	585
McNABB, W. K., Hockaday Junior College, Dallas, Tex.....	393, 394, 673
MEIGHAN, JOHN N., Bowling Green State University, Bowling Green, Ohio..	709
MICHAUD, HOWARD H., Purdue University, Lafayette, Ind.....	141
MIKSA, FRANCIS L., Aurora, Ill.....	387, 488, 491

MILLER, JULIUS SUMNER, Dillard University, New Orleans, La.....	154, 250, 374, 714, 784
MILLS, C. N., Normal, Ill.....	289
MILLS, GORDON, University of Texas, Austin, Tex.....	30
MOHLER, ORREN, McMath-Hulbert Observatory, University of Michigan, Ann Arbor, Mich.....	1
MORK, GORDON M. A., State Teachers College, Bemidji, Minn.....	526
MORSE, STANLEY W., San Francisco State College, San Francisco, Calif....	625
MOUNT-CAMPBELL, PAUL, New Mexico Military Institute, N. M.....	85
MUELLER, HANS, Massachusetts Institute of Technology, Cambridge, Mass.	577
MUHLEMAN, GEO. W., University of Florida, Gainesville, Fla.....	515, 693
MURPHY, GRACE E. BARSTOW, 311 E. 72nd St., New York, N. Y.....	805
MYERS, SHELDON S., Western State High School Kalamazoo, Mich.....	593, 674, 698, 756, 757

N

NELSON, O. A., Central High School, St. Paul, Minn.....	829
NICKELS, BELLE, Columbia, S. C.....	197
NYBERG, JOSEPH A., Hyde Park High School, Chicago, Ill....	76, 191, 271, 484, 649

O

O'LEARY, V. C., Jefferson High School, Lafayette, Ind.....	802
------------------------------------------------------------	-----

P

PACKARD, CHARLES E., Alfred University, Alfred, N. Y.....	817
PALMER, E. LAURENCE, Cornell University, Ithaca, N. Y.....	15, 617
PAULA, SISTER MARY, Notre Dame of Maryland, Baltimore, Md.....	490
PEAK, PHILIP, University School, Bloomington, Ind.....	95, 759, 760
PEARL, MARTIN, Brooklyn, N. Y.....	196
PERISHO, CLARENCE R., McCook, Neb.....	387
PETERSON, SHAILER, American Dental Association, Chicago, Ill.....	391, 392, 796
PILTZ, ALBERT, Roosevelt School, Detroit, Mich.....	442
PTILUGA, GEORGE E., State Teachers College, Oswego, N. Y.....	460
PLACE, KARL M., Dearborn, Mich.....	198
PODENDORF, ILLA, Laboratory School, University of Chicago, Chicago, Ill...	549
PORGES, ARTHUR, Los Angeles, Calif.....	661
POTZGER, ESTHER WHITNEY, Canterbury College, Danville, Ind.....	843
POWERS, EDWARD, Larkfield School, Northport, Long Island, N. Y.....	267
PRICE, H. VERNON, University High School, Iowa City, Iowa.....	446

R

RAHN, HERMAN R., Wells High School, Chicago, Ill.....	614
RANKIN, W. W., Duke University, Durham, N. C.....	594
RASMUSEN, RUTH B., Chicago Junior College, Woodrow Wilson Branch, Chicago, Ill.....	502
READ, CECIL B., University of Wichita, Wichita, Kan.....	91, 295, 296, 386, 395, 396, 676
REX, CARL, Naval Torpedo Station, Newport, R. I.....	55
RHEIMS, JOEL J., Corona Junior High School, Corona, N. Y.....	13
RICHARDS, WILLIAM A., Riverside, Ill.....	580
ROSENBLATT, PHILIP, Brooklyn, N. Y.....	84
RUCHLIS, HYMAN, Lafayette High School, Brooklyn, N. Y.....	222, 807

S

SANDERS, JAMES M., Chicago Teachers College, Chicago, Ill.....	212
SCHAAF, WILLIAM L., Brooklyn College, Brooklyn, N. Y.....	315
SCHORLING, RALEIGH, University of Michigan, Ann Arbor, Mich.....	413
SCHUTTER, CHARLES H., Steinmetz High School, Chicago, Ill.....	404
SEARS, FRANCIS WESTON, Massachusetts Institute of Technology, Cam- bridge, Mass.....	572
SEGAL, MELVIN J., Michigan State College, East Lansing, Mich.....	241
SILLER, HARRY, Waterbury, Conn.....	581, 660
SIMER, DORR M., Nicholas Senn High School, Chicago, Ill.....	725

SIUDZINSKI, SYLVESTER J., Pulaski Junior-Senior High School, Milwaukee, Wis.....	348
SLEIGHT, NORMA, New Trier Twp. High School, Winnetka, Ill.....	303, 578
SMITH, VILLA B., John Hay High School, Cleveland, Ohio.....	390, 391, 588
SMITH, WALTER L., Long Beach, Calif.....	835, 837
SORENSEN, CLARENCE WOODROW, Traveler and Geography Lecturer, 1314 E. 56th St., Chicago, Ill.....	497
SPECTOR, CLIFFORD, Bronx, N. Y.....	384
STASSEN, HAROLD.....	388
STERNIG, JOHN, Glencoe Public Schools, Glencoe, Ill.....	399, 609
STOLLBERG, ROBERT, Wabash College, Crawfordsville, Ind.....	258
SUTTON, RICHARD M., Haverford College, Haverford, Pa.....	326

T

TAN, KADY, Chip-Bee Senior Middle School, Amoy, Fukien, China.....	745, 762
TELLER, JAMES D., The Adjutant General's Office, Department of the Army, Washington, D. C.....	729
THORNDIKE, ALBERT, Milton Academy, Milton, Mass.....	54, 375
THURBER, WALTER A., State Teachers College, Cortland, N. Y.....	292
TINKLE, WILLIAM J., Taylor University, Upland, Ind.....	369
TODD, GARNET, Harrison School, East Chicago, Ind.....	44, 139
TRIGG, C. W., Los Angeles City College, Los Angeles, Calif.....	287
TUCKER, A. N., J. Sterling Morton High School and Junior College, Cicero, Ill.....	512, 761

U

UNSELD, GEORGE P., West High School, Salt Lake City, Utah.....	48
UTZ, W. ROY, University of Virginia, Charlottesville, Va.....	742

V

VAN DOREN, ESTIL B., Washington High School, Indianapolis, Ind.....	94, 672
VITZ, GRACE B., Shortridge High School, Indianapolis, Ind.....	293
VOORHEES, H. R., Chicago City College, Herzl Branch, Chicago, Ill.....	91, 201, 496, 587, 588, 842, 843

W

WALLACE, D. F., St. Paul, Minn.....	86
WARNER, GLEN W., Chicago City College, Wilson Branch, Chicago, Ill.....	89, 95, 103, 199, 292, 336, 389, 493, 495, 583, 590, 664, 668, 751, 758, 759, 839, 844
WELCH, WINONA H., DePauw University, Greencastle, Ind.....	503, 640
WHITESIDE, WILLIAM S., Naval Torpedo Station, Newport, R. I.....	63
WILSON, HAZEL S., Annapolis, Md.....	491, 581
WOOD, R. D., Northwestern University, Evanston, Ill.....	305
WRIGHT, HOWARD F., Eli Lilly Co., Indianapolis, Ind.....	291, 668

Y

YOTHERS, LEE R., Rahway High School, Rahway, N. J.....	421
YOUNG, P. M., Miami University, Oxford, Ohio.....	521
YUDOWITCH, KENNETH L., University of Missouri, Columbia, Mo.....	183, 262

